one or more electrochemical deposition cells disposed in connection with the mainframe; and

a thermal anneal chamber disposed in connection with the mainframe.

2. The system of claim 1 wherein the thermal anneal chamber comprises a rapid thermal anneal chamber having a heater plate.

3. The system of claim 2 wherein the heater plate comprises an atmospheric pressure heater plate.

4. The system of claim 1, further comprising:

a system controller adapted to control operations of one or more components of the electro-chemical deposition system.

5. The system of claim 4, wherein the thermal anneal chamber further comprises a gas inlet adapted to introduce one or more gases into the thermal anneal chamber.

6. The system of claim 5 wherein the system controller is adapted to control the gas inlet to the chamber to provide a chamber environment having an oxygen content of less than 100 parts per million.

7. The system of claim 6 wherein the gas inlet is connected to a nitrogen gas source to introduce nitrogen into the chamber.

8. The system of claim 6 wherein the gas inlet is connected to a nitrogen gas source and a hydrogen gas source to introduce nitrogen and hydrogen into the chamber, wherein the hydrogen content is maintained at less than about 4%.

9. The system of claim 1 wherein the loading station comprises:

i) one or more wafer cassette receiving areas; and

ii) one or more loading station wafer transfer robots for transferring a wafer between the loading station and the mainframe.

10. The apparatus of claim 9, wherein the thermal anneal chamber is disposed in connection with the mainframe through the loading station and the one or more loading station wafer transfer robots are adapted to transfer a wafer between the loading station and the thermal anneal chamber.

11. The apparatus of claim 10, further comprising:

a spin-rinse-dry (SRD) station disposed on the mainframe at a position adjacent the loading station.

19. (Amended) The apparatus of claim 1, wherein the thermal anneal chamber comprises one or more rapid thermal anneal chambers.

E1

20. (Amended) The apparatus of claim 1, wherein the anneal chamber is disposed in connection with the mainframe through the loading station.

21. An electro-chemical deposition system, comprising:

a mainframe having a mainframe wafer transfer robot disposed therein;

a loading station disposed in connection with the mainframe having one or more loading station robots;

one or more processing stations disposed in connection with the mainframe, wherein each processing station comprises one or more electrochemical deposition cells; and

one or more post deposition treatment chambers disposed in connection with the mainframe.

22. The deposition system of claim 21, wherein the loading station further comprises one or more cassette receiving areas and at least one wafer orienter to set a wafer.

23. The deposition system of claim 21, wherein the one or more post deposition treatment chambers are one or more spin-rinse-dry modules and wherein the one or more loading station robots transfer wafers between the one or more cassette receiving areas and the one or more spin-rinse-dry modules.

24. The deposition system of claim 21, wherein the one or more loading station robots transfer wafers between the one or more cassette receiving areas and the one or more post deposition treatment chambers.

25. The deposition system of claim 21, wherein one or more spin-rinse-dry modules are connected between the loading station and the mainframe.

26. The deposition system of claim 21, wherein at least two electrochemical deposition cells are disposed on a first side of the mainframe and at least two electrochemical deposition cells are disposed on a second side of the mainframe.

27. The deposition system of claim 26, wherein the first side and the second side of the mainframe are positioned opposite one another.

28. The deposition system of claim 26, wherein the mainframe wafer transfer robot is disposed between the first and second side of the mainframe.

29. The deposition system of claim 21, wherein the mainframe wafer transfer robot comprises a plurality of individual robot arms to provide independent access of wafers in the one or more processing stations and one or more spin rinse dry modules.

30. The deposition system of claim 29, wherein the mainframe comprises one mainframe wafer transfer robot arm for each electrochemical deposition cell.

31. The deposition system of claim 21, wherein at least one of the mainframe wafer transfer robots facilitates transfer of a wafer from a face-up position to a face-down position.

32. The deposition system of claim 21, wherein the one or more post deposition treatment chambers comprise one or more rapid thermal anneal chambers, one or more thermal anneal chambers, or a combination thereof.

33. The deposition system of claim 21, further comprising an electrolyte replenishing system disposed about the mainframe in fluid communication with each of the electrochemical deposition cells.

34. The deposition system of claim 21, wherein the electrolyte replenishing system comprises one or more filters, one or more chemical analyzers, and one or more chemical storage tanks.

35. The deposition system of claim 34, further comprising one or more spin-rinse-dry modules and wherein at least one of the one or more chemical storage tanks provides one or more chemicals to the spin-rinse-dry modules.

36. The deposition system of claim 21, further comprising one or more spin-rinse-dry modules disposed in connection with the mainframe.

37. The deposition system of claim 36, further comprising a pass-through cassette disposed above the spin-rinse-dry modules.

38. An electro-chemical deposition system, comprising:

a mainframe having a mainframe wafer transfer robots disposed therein;

one or more processing stations disposed in connection with the mainframe, wherein each processing station comprises one or more electrochemical deposition cells;

one or more cleaning modules disposed in connection with the mainframe; and

one or more post deposition treatment chambers disposed in connection with the mainframe.

39. The deposition system of claim 38, wherein the one or more loading station robots transfer wafers between the one or more cassette receiving areas and the one or more cleaning modules.

40. The deposition system of claim 38, wherein the one or more loading station robots transfer wafers between the one or more cassette receiving areas and the one or more post deposition treatment chambers.

41. The deposition system of claim 38, further comprising an electrolyte replenishing system disposed about the mainframe.

42. The deposition system of claim 38, further comprising a pass-through cassette disposed above the cleaning modules.

43. The deposition system of claim 42, wherein a processed wafer is transferred from the one or more electrochemical deposition cells into the pass-through cassette and transferred from the pass-through cassette using the loading station robots to the one or more post deposition treatment chambers.

44. The deposition system of claim 38, further comprising a loading station disposed in connection with the mainframe having one or more loading station robots.

45. An electro-chemical deposition system, comprising:

a mainframe having a mainframe wafer transfer robots disposed therein;

a loading station disposed in connection with the mainframe having one or more loading station robots;

two or more processing stations disposed in connection with the mainframe, wherein each processing station comprises two or more electrochemical deposition cells;

two or more cleaning modules connected between the loading station and the mainframe; and

two or more post deposition treatment chambers in connection with the loading station.

46. The deposition system of claim 45, further comprising a pass-through cassette disposed above the cleaning modules.

47. The deposition system of claim 45, wherein a processed substrate is transferred from the one of the electrochemical deposition cells into the pass-through cassette and transferred from the pass-through cassette using the loading station robots to one of the post deposition treatment chambers.

Please add the following new claims.

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48. (New) The electro-chemical deposition system of claim 1, wherein the thermal anneal chamber comprises at least one gas outlet is selectively in fluid communication with a vacuum source.

E2

49. (New) The electro-chemical deposition system of claim 1, wherein the thermal anneal chamber comprises a hot plate configured to heat substrates and a cool plate configured to cool substrates.

50. (New) The electro-chemical deposition system of claim 1, further comprising a substrate rinse and dry station positioned to separate the substrate loading station from the mainframe.

51. (New) The electro-chemical deposition system of claim 50, wherein substrate rinse and dry station separates wet processing components of the system from dry processing components of the system.

52. (New) An integrated system for electrochemically processing substrates, comprising:

at least one electrochemical processing cell positioned on a mainframe support structure;

means for transferring substrates positioned proximate the at least one electrochemical processing cell; and

at least one annealing chamber positioned proximate the at least one substrate transfer robot, the means for transferring being configured to transfer substrates between the at least one electrochemical processing cell and the at least one annealing chamber.

E2 contd

53. (New) The integrated system of claim 52, wherein the at least one annealing chamber comprises at least one of a rapid thermal annealing chamber and an annealing chamber having a resistive heating element positioned therein.

54. (New) The integrated system of claim 52, further comprising a substrate loading station in communication with the mainframe.

55. (New) The integrated system of claim 54, wherein the at least one annealing chamber is positioned in communication with the substrate loading chamber.

56. (New) The integrated system of claim 52, wherein the means for transferring substrates comprises at least one substrate transfer robot.

57. (New) A method for electrochemically processing a substrate, comprising:

plating a metal layer onto a substrate in an electrochemical plating cell positioned on an integrated substrate processing system;

transferring the substrate from the electrochemical plating cell to an annealing chamber in communication with the integrated substrate processing system with at least one substrate transfer robot;

annealing the substrate in the annealing chamber at an annealing temperature of between about 200° C and about 450° C for an annealing duration of between about 30 seconds and 30 minutes.

58. (New) The method of claim 57, further comprising rinsing and drying the substrate in a spin rinse dry cell positioned on the processing system after the plating process and before the annealing process.

59. (New) The method of claim 57, further comprising removing an edge bead from the substrate after the plating process in a bevel clean chamber positioned on the processing system.

E2 Cont'd

60. (New) The method of claim 57, further comprising transferring the substrate from a cassette positioned communication with a substrate loading station to the electrochemical plating cell.

61. (New) The method of claim 57, wherein the annealing process further comprises increasing the temperature of the annealing chamber to a predetermined annealing temperature in less than about 2 seconds.

62. (New) The method of claim 61, wherein the temperature of the annealing chamber is increased at a rate of at least 50° per second to the predetermined annealing temperature.

63. (New) An electrochemical plating system, comprising:

a mainframe support member;

at least two electrochemical plating cells positioned on a mainframe support member;